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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,185	07/03/2001	Kouji Kumada	70904-56232	9635
21874	7590	07/26/2004	EXAMINER	
EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205			LESPERANCE, JEAN E	
			ART UNIT	PAPER NUMBER
			2674	S
DATE MAILED: 07/26/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	<i>[Signature]</i>
	09/898,185 Examiner Jean E Lesperance	KUMADA ET AL. Art Unit 2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 5-11-2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-4, 6, 10-12, 14, 18-21, 23 and 27-30 is/are rejected.
- 7) Claim(s) 5, 7-9, 13, 15-17, 22, and 24-26 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 03 July 2001 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____ .  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

Claims 1-30 are presented for examination.

### ***Drawings***

Figures 8-10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6, 10-12, 14, 18-21, 23, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art.

As for claims 1, 12, and 21, Admitted prior art teaches a common electrode signal generator circuit 50 as shown in FIG. 8 is used as a circuit to adjust the DC level, i.e., the voltage level, of the common electrode signal (Page 3, Lines 2-5) corresponding to said drive circuit comprising adjusting means for adjusting potential differences between the pixel electrodes and a common electrode, the DC level of the common electrode signal V.sub.COM is adjusted by varying the variable resistor 56 in the clamp circuit 57. In this manner, the DC level as the potential difference between the common electrode signal V.sub.COM and a pixel electrode (not shown) is adjusted to an optimum value in light of variations in the drain voltage caused by the effects of a parasitic capacity of the TFT (Page 3, lines 16-22) corresponding to wherein the adjusting means is composed of voltage level altering means for shifting voltage levels of the source signals supplied by the source driver equally for all the pixel electrodes. The Admitted prior art does not explicitly teach shifting voltage levels of the source signals supplied by the source driver equally for all the pixel electrodes. However, the Admitted prior art teaches variations in the drain voltage caused by the effects of a parasitic capacity of the TFT are erratic and contain irregularity that occur with each panel in manufacture. Therefore, an arrangement is made to adjust the DC level (DC voltage) for each panel (Page 2, lines 22-25 and page 3, line 1).

Thus, it would have been obvious to a person of ordinary skill in the art to modify variations in the drain voltage caused by the effects of a parasitic capacity of the TFT are erratic and contain irregularity that occur with each panel in manufacture. Therefore, an arrangement is made to adjust the DC level (DC voltage) for each panel

to achieve the function of shifting voltage levels of the source signals supplied by the source driver equally for all the pixel electrodes because this would allow the Dc level of the potential difference between the common electrode and the pixel electrode to be adjusted at optimum value.

As for claims 2-4, The Admitted prior art teaches variations in the drain voltage caused by the effects of a parasitic capacity of the TFT are erratic and contain irregularity that occur with each panel in manufacture. Therefore, an arrangement is made to adjust the DC level (DC voltage) for each panel (Page 2, lines 22-25 and page 3, line 1) corresponding to wherein the adjusting means adjusts the potential differences between the pixel electrodes and the common Electrode to compensate for effects of variations in drain voltages caused by parasitic capacity in the film transistors and compensate for irregularities in DC voltage..

As for claims 6, 14, and 23, The admitted prior art teaches a source driver 61 for supplying source signal voltages to source signal lines of the TFT-LCD panel is typically of a 6 to 8 bit R-DAC type and carries out digital-to-analog conversion (D/A conversion) based on reference voltages V1 to V4 fed from an external reference voltage generator circuit 62 to produce source signal voltages (Page 3, lines 23-25) and (Page 4, 1-4) corresponding to wherein the voltage divider means is capable of producing a plurality of mutually different sets of voltages as the source drive reference voltages and selectively supplying one of the sets as outputs.

As for claims 10, 18, and 27, The Admitted prior art teaches by dividing the voltage difference between the ground potential GND and an high reference voltage

V.sub.HIGH fixed, for example, at about 4 V with resistors R21, R22, R23, R24, R25, switches SW1, SW3, SW5, SW7 are turned on according to a signal .phi. to supply reference voltages V1 to V4 to the source driver 61 (Page 4, lines 13-19) corresponding to said driver circuit further including common electrode signal generator means including switching means only for switching between the ground potential and the positive power source to provide a fixed potential to the common electrode.

As for claims 11, 19 and 28, The Admitted prior art teaches by dividing the voltage difference between the ground potential GND and an high reference voltage V.sub.HIGH fixed, for example, at about 4 V with resistors R21, R22, R23, R24, R25, switches SW1, SW3, SW5, SW7 are turned on according to a signal .phi. to supply reference voltages V1 to V4 to the source driver 61 (Page 4, lines 13-19) corresponding to wherein the common electrode signal generator means is built in the source driver.

As for claims 20 and 29, The Admitted prior art teaches the liquid crystal layer as in a case of a reflective electrodes on the active matrix substrate (Page 8 lines 5-8) corresponding to wherein the liquid crystal display is one of reflective, opaque, reflective/transparent, or transparent types.

As for claim 30, The Admitted prior art teaches an active matrix drive liquid crystal display (LCD) where it is inherent to use the electronics include a mobile telephone, a personal data assistant, a notebook personal computer, a portable television set, and a portable game machine corresponding to wherein the electronics

include a mobile telephone, a personal data assistant, a notebook personal computer, a portable television set, and a portable game machine.

***Allowable Subject Matter***

Claim 5, 7-9, 13, 15-17, 22, and 24-26, would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of raisons for the indication of allowable subject matter: the claimed invention is directed to a drive circuit for use in a liquid crystal display. Claims 5, 7-9, 13, 15-17, 22, and 24-26 identifies a uniquely distinct feature "high-and-low-reference-voltage-interconnecting means for altering the high and low reference voltages in an interconnected manner; and low-reference-voltage specifying means for specifying a ratio of the low reference voltage to the high reference voltage". The closest art, The Admitted prior art, as discussed above, fails to anticipate or render the above underlined limitations obvious.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean Lesperance whose telephone number is (703) 308-6413. The examiner can normally be reached on from Monday to Friday between 8:00AM and 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Richard Hjerpe, can be reached on (703) 305-4709.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal  
drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or  
proceeding should be directed to the technology Center 2600 Customer Service Office  
whose telephone number is (703) 306-0377.

Jean Lesperance



Date 7-17-2004

Art Unit 2674



7/22/04

RICHARD HJERPE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600